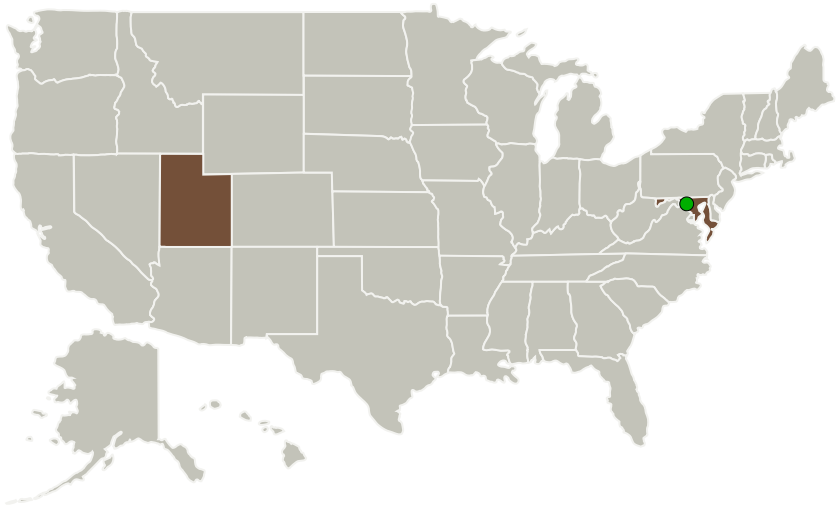
Wideband, Low-power Multi-mode MMIC Radar Transceivers with Phase Control and Integrated Baseband Signal Processing, Phase I

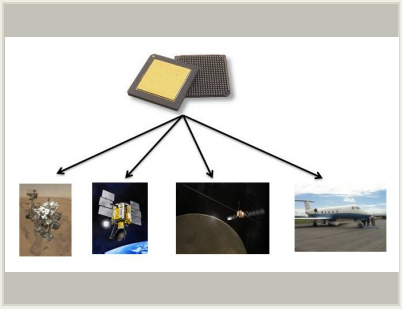
Completed Technology Project (2013 - 2013)

Project Introduction

NASA has numerous missions that involve radar and radiometry. In the past, the practice has been to build each system as a one-off program, which makes MMIC design unattractive from a cost perspective. In an era of reduced budgets and the need for higher efficiencies both in R&D cost reduction and performance, a better approach is needed. Linear Signal proposes a wideband analog blockset approach, where critical design blocks can be used at multiple bands, on multiple platforms, and for both radar applications and satellite communications markets. Transceiver components can be used for chips targeted for communications application or radar application from P band through X band, for pulsed, chirped pulse and FMCW applications. The work proposed in Phase I and II would result in core IP blocks that can be quickly and relatively inexpensively adapted to a single chip radar transceiver for mission specific objectives. Linear Signal's expertise in wideband SiGe designs and beamforming applications is perfectly suited for this effort.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Linear Signal, LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	Orem, Utah
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Utah

Project Transitions

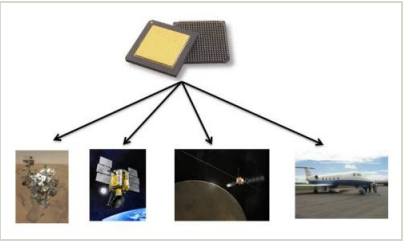
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138571)*

Images



Project Image
Wideband, Low-power Multi-mode MMIC Radar Transceivers with Phase Control and Integrated Baseband Signal Processing
(https://techport.nasa.gov/image/130872)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Linear Signal, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

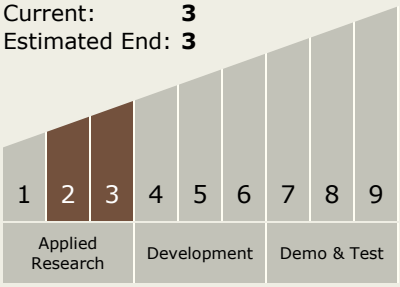
Carlos Torrez

Principal Investigator:

Matthew Romney

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System